

NON-PLASMA REACTION APPARATUS AND METHOD

Abstract of the Disclosure

An apparatus and method for forming a self-limiting etchable layer on a workpiece. The apparatus comprises: a chamber adapted for holding a workpiece; a distribution plate within the chamber, wherein the distribution plate includes channels for introducing a first fluid (e.g., ammonia) and a second fluid (e.g., hydrogen fluoride) into the apparatus, such that the first and second fluids may be directed into the apparatus at the angles θ_1 and θ_2 with respect to an exposed surface of the distribution plate, wherein the channels for each type of fluid may be arranged respectively in alternating rings; and wherein each angle θ_1 and θ_2 are at least 45 degrees and less than 90 degrees, offset by α_2 and β_2 and α_1 and β_1 by analogy. The method for forming the etchable layer on the workpiece comprises introducing a first fluid and a second fluid into the chamber through the channels.